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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
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EXAMINER
YEH, JAMES T

ART UNIT	PAPER NUMBER
2734	4

DATE MAILED: 11/30/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/702,724	Applicant(s) SANDOR ET AL.n	
	Examiner Yeh, James	Art Unit 1714	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1 - 12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1- 12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2
4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because of its improper format. The abstract is not in a single paragraph format. Applicant is reminded of the proper language and format for an abstract of the disclosure. See MPEP 608.01(b).

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Non-statutory Obviousness Double-Patenting

2. The following is a quotation of the appropriate paragraph of MPEP 804 that forms the basis for the rejections under this section made in this Office:

Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in the application defines an obvious variation of an invention claimed in the patent.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2, 4-7, and 11-12 are provisionally rejected under judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 9 of copending Application No. 09/743,219. Although the conflicting claims are not identical, they are not

patentably distinct from each other because of the following reasons.

Thus, attention is directed to the following table:

Claims in copending appl. (09/743,219)	Claims in present appli. (09/702,724)
Claim 1 – polymer particle in disperse distribution	**Claim 1** –aqueous polymer dispersion
Claim 1 – ethylenically unsaturated monomer M1	**Claim 5** – ethylenically unsaturated monomer M1b
Claim 1 – $Tg^{I} - Tg^{I}$ is > 10K	**Claim2** - $Tg^{(2)}$ is at least 10 Kelvins above $Tg^{(1)}$
Claim 1 – pigmented aqueous formulation	**Claim 11** – pigmented and/or filled coating composition
Claim 1 – Free-radical aqueous emulsion polymerization	**Claim 1**- free-radical aqueous emulsion polymerization
Claim 1 – multi-stage polymerization	**Claim 1** – polymerization of a first monomer charge M1 to give a polymer P1 ...polymerization of a second monomer M2 to give a polymer P2
Claim 1 – polymerization stage at no point exceeds 50 mol %	**Claim 4** – chain transfer reagent
Claim 2 – min. 80% monoethylenically unsaturated hydrophobic monomer	**Claim 6** – at least 80% of C1-C4 alkyl methacrylates
Claim 3 – monomer selected from vinylaromatic, esters of acrylic acid , and esters of methacrylic acid	**Claim 7** – C1-C10 alkyl esters of acrylic acid, C1-C4 esters of methacrylic acid and from vinylaromatic monomers
Claim 9 – emulsion paint	**Claim 12** - latex paint

From the above table, in light of the overlap between the cited claims, it is clear that claims 1-2, 4-7, and 11-12 of the present application are rendered obvious over the claims of 1-3 and 9 of the copending Application No. 09/743,219.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112, Second Paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "according to Fox" under subsections (i) and (ii) in claim 1 and 10 fails to describe the meaning of Fox equation, which calculates the overall glass transition temperature when two different polymers are mixed together. The claim under (i) reads " ... monomer charge M1 to give a polymer P1 having a theoretical glass transition temperature Tg(1) (according to Fox) ...". It is suggested that the applicant deletes the term "(according to Fox)" wherever the phrase occurs in claim 1 and 10, inserts the phrase ",where $Tg^{(1)}$ and $Tg^{(2)}$ satisfy Fox's equation," at the beginning of line 20 of column 26 before the phrase "at least one chain transfer agent." In claim 1, and inserts the phrase ",where $Tg^{(1)}$ and $Tg^{(2)}$ satisfy Fox's equation," at the beginning of line 45 of column 27 of claim 10 before the phrase "in the aqueous dispersion of polymer P1...".

The term "being obtainable" in claim 1 is a relative term which renders the claim indefinite. The term "being obtainable" is not defined by the claim, the specification does not provide a standard for ascertaining

the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is suggested that the applicant replaces the objectionable term by "obtained by".

Claim Rejections - 35 USC § 112, First Paragraph

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, and 9-12 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for producing polymers made with monomers M1 and M2 which are ethylenically unsaturated monomers, does not reasonably provide enablement for using any monomer for M1 and M2. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The number of monomers available for synthesis is large and will not totally satisfy the required polymerization condition to produce the inventive polymer dispersion.

Case law holds that applicant's specification must be "commensurately enabling [regarding the scope of the claims]." *Ex parte*

Kung, 17 USPQ2d 1545, 1547 (Bd. Pat.App. Inter. 1990). Otherwise **undue experimentation** would be involved in determining how to practice and use applicant's invention. Although undue experimentation is not mentioned in the statue, enablement under 35 U.S.C. 112, first paragraph, requires that the specification teach one of ordinary skill to make and use the invention without excessive experimentation. *Hybritech v. Monoclonal Antibodies Inc.*,802 F.2d at 1367, 1384, 231 USPQ 81, 94 (Fed. Cr. 1986), *cert. den'd,* 107 S.Ct. 1606 (1987) and *Atlas Powder,* 750 F.2d at 1576, 224 USPQ at 413. The test for undue experimentation as to whether or not all compounds within the scope of claims 1-3, 5, and 8-10 can be used as claimed and whether claim 1-3, 5, and 8-10 meet the test is stated in *Ex parte Forman,* 230 USPQ 546, 547 (Bd. Pat. App. Inter. 1986) and *In re Wands,* 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). an application of that test to claims 1-3, 5, and 8-10 are summarized below:

Factor in determining Undue experimentation		**Analysis of claims 1-3, 5, and 8-10 in light of this actor**
Quantity of experimentation necessary	→	Great – due to the large number of potentially available monomers and initiators to produce polymer dispersion
Amount of direction or guidance presented	→	None for the broad class of compounds
Relative skill of those in the art	→	High – but the experimentation result depends highly on how well the synthesis procedure was taught in the disclosure
Predictability or unpredictability of the art	→	Unpredictable – due to the large number of variables and skill level

From the above it is seen that undue experimentation **would** be required to make and use the invention of claims 1-5, and 9-12.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 12 are rejected under 35 U.S.C. 102 (b) as being anticipated by Guerin U.S. Patent No. 5,643,993.

Guerin discloses aqueous dispersion of polymer particles comprising at least one first polymer and at least one second polymer which are mutually incompatible. The first polymer has a glass transition temperature of from -25° to 0° C and the second polymer has a glass transition temperature of from 5° to 40° C. The glass transition temperature of the second polymer exceeds that of the first polymer by less than 40° C. In Column 5 starting line 38, Guerin illustrates the process for the production of an aqueous dispersion comprising a first step of emulsion polymerization of monomers, leading to the formation of

a first polymer, followed by a second step of emulsion polymerization of monomers, leading to the formation of a second polymer which is incompatible with the first. In Column 6 line 6, this polymer system is polymerized by free radicals. This meets the limitation of claims 1 and 2.

In Column 6 line 23, Guerin uses mercapto compound (containing -SH functional group) as chain transfer reagent to regulate the number average molecular weight of the resulting polymer. In his example 1, 0.2 to 0.5% of chain transfer agent, n-dodecanethiol, are used to produce the polymers. The resulting aqueous polymer dispersion made by free radical emulsion polymerization has a MFT (minimum film-forming temperature) of 0° C. This meets the limitation of claims 3-5.

In Guerin's Claims 2 and 3 he further teaches that these aqueous polymer dispersions are prepared from at least one ethylenically unsaturated monomers which is chosen from among the esters of acrylic acid or methacrylic acid and aromatic vinyl monomers. This meets the limitation of claims 6-8.

In Table IV of Guerin's disclosure, monomer feeding ratio to produce the polymer dispersion ranges from approximately 1 / 2 to 3 / 1. This meets the limitation of claim 9.

Finally, Guerin discloses the processing and application of aqueous polymer dispersions. In Column 8 starting line 32, it states: the formulation method employed may be any one of those which are

currently known in the art of formulating latex paint. Essentially, the latex paints comprise a mixture of pigmented material and latex. This meets the limitation of claims 10-12.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to aqueous polymer dispersion in general:

U.S. Pat. No. 4,478,974 to Lee – aqueous latex polymers with two Tg

U.S. Pat. No. 5,266,646 to Eisenhart – use of ethylenically unsaturated monomer

U.S. Pat. No. 5,705,563 to Wendel – free radical polymerization containing the monomers

U.S. Pat. No. 5,536,779 to Wendel – aqueous polymer dispersion using mercaptan as chain transfer agent

U.S. Pat. No. 5,325,856 to Ishikawa – hydrophobic/hydrophilic aqueous latex dispersion and its processing

U.S. Pat. No. 4,677,003 to Redlich et al – sequential free radical emulsion polymerization

U.S. Pat. No. 4,107,120 to Plamondon – Tg difference

U.S. Pat. No. 5,185,387 to Klesse – aqueous polymer dispersion and minimum film-forming temperature in paint application

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Yeh whose telephone number is (703) 305-3139. The examiner can normally be reached on Monday – Friday from 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Vasu Jagannathan, can be reached at (703) 306-2777.

Jty
November 2, 2001

Vasu Jagannathan
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